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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/673,204	02/01/2001	James C. Sturm	7616/21	3470

7590 01/20/2004
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EXAMINER

CLEVELAND, MICHAEL B

ART UNIT PAPER NUMBER

1762

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/673,204

Applicant(s)

STURM ET AL.

Examiner

Michael Cleveland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-21,23-31 and 36-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-18 is/are allowed.
- 6) ☒ Claim(s) 1-10,12,14,19-31 and 36-41 is/are rejected.
- 7) ☒ Claim(s) 11 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. During the interview held on 10/1/2003, the Examiner indicated that Applicant's argument overcame the rejection of claims 1, 28, and 36. However, after further consideration, the examiner has concluded that the arguments regarding these claims is not convincing. In addition, new art is cited against claims 1, 9, 28, and 36. Accordingly, prosecution has been restarted, and Applicant's proposed After Final amendment has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 6, and 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Morris et al. (U.S. Patent 4,914,451, hereafter '451).

'451 teaches a method for manufacturing an organic film, comprising:

providing an organic host material (12), (e.g., polyacrylic acid (col. 6, line 11)), disposed over a substrate (10); and

applying a dye (i.e., dopant) dissolved in a solvent onto the organic host material, such that the solvent causes the dopant to diffuse into the organic host material (col. 2, lines 19-56).

Claims 2-3, 30-31: The dye may be deposited as droplets from an ink-jet printer (col. 6, lines 14-19).

Claim 6: The dopants is a dye (col. 4, lines 19-25), which changes the color (i.e., light-emitting properties) of the film.

Claims 28-31: Claim 28 contains the recitation in the preamble "for an OLED". The limitation does not require any structural relationship (unlike claim 41, which requires that the

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film be placed between electrodes to form an organic light emitting device). '451 teaches printing a dye onto a sheet to produce overhead transparencies or archival information. Thus, the process of '451 is capable of use in producing items usable in conjunction with an OLED, such as by printing an indicia or instruction on the screen or frame of an OLED.

Claim 29: The dopants are applied and migrate to form the imaged pattern (col. 2, lines 57-62).

4. Claims 19, 24-25, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Kaszczuk (U.S. Patent 5,055,444, hereafter '444).

'444 teaches a method of manufacturing an organic film, comprising:

providing a dye image-receiving layer (i.e., a first layer of material) (col. 8, lines 36-45);

applying a dye (i.e., a dopant) in a pattern to the dye image-receiving layer such that the image-receiving layer contains the dopant (col. 8, lines 36-45);

providing a final receiver (i.e., a second layer) comprising an organic material (col. 8, line 65-col. 9, line 10); and

transferring the dye from the dye image-receiving layer to the final receiver in the pattern such that the final receiver contains the dye (col. 9, lines 11-21; Abstract).

Claims 24-25: The dopants may be blue dyes (col. 5, lines 3-30).

Claim 27: The dye is transferred by thermal transfer (i.e., annealing) (Abstract).

5. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Kim (U.S. Patent 6,099,746, hereafter '746).

'746 teaches providing a first electrode (12) disposed on substrate (11) (col. 4, lines 27-32);

applying an organic coating (14) having a dopant (col. 4, lines 23-30) over the first electrode;

applying a second electrode (15) over the organic coating (col. 4, lines 1-35); and

removing the dopant (and the host) from areas of coating (14) by planarization (col. 4, lines 47-50; fig. 2d).

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6. Claims 1-3, 5-7, 9, 28-31, 36, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Shirasaki et al. (U.S. Patent 5,895,692, hereafter '692).

Claims 1-3, 5-7, 28-31, 36, 41: '692 teaches a method of making an organic light-emitting device (col. 1, lines 1-15)

providing a substrate (11);

coating an organic material (16) on the substrate (col. 4, lines 41-60; Figs. 6A-6B); and

applying fluorescent dyes (i.e., dopants) (13a-c) dissolved in a solvent (col. 7, lines 21-23) in selected areas to modify the color (i.e., the light-emitting properties) of the film (col. 4, line 61-col. 5, line 8; Figs. 7A-8B);

and causing the dopant to migrate into the organic coating (col. 7, lines 15-36).

'692 does not explicitly teach that a solvent from the ink jet or screen printing inks causes the dopant to diffuse into the organic material. '692 teaches the same organic material (polyvinylcarbazole) described in Applicant's specification, and the same dyes (coumarins) disclosed by Applicant, applied in the same form (dissolved in a liquid) as Applicant. Therefore, it appears that the same phenomenon of diffusion must have occurred in the case of Shirasaki '692 as did in the case of Applicant or else such diffusion is caused by essential features which are not present in the claims. Furthermore, '692 teaches that diffusion may occur while the pigments are in the form R', G', and B' as pigments dissolved in the solvent (col. 7, lines 15-30). Therefore, Shirasaki teaches diffusion while the solvent is present.

Claims 2-3, 30-31: The dye may be applied by ink-jet printing (col. 7, lines 15-24).

Claim 5: The dyes may be applied by screen printing (col. 7, lines 15-24).

Claims 6-7: The inks may be red, green, or blue dyes (col. 5, lines 1-8).

Claim 29: The dopant is applied in a pattern and the dopant forms the same pattern after migrating into the organic layer (Figs. 7A-8B; col. 7, lines 15-36).

Claim 36: The dyes may be applied by screen printing (col. 7, lines 15-24). Screen printing involves depositing a patterned mask on the surface to be printed (in this case, organic layer (16)), applying the printing ink (in this case, containing the dopant) over the mask and the printing surface. The dyes are then caused to migrate into the organic film in the printed pattern (i.e., in the areas exposed through the screen) (col. 7, lines 15-36; Figs. 7A-8B).

Claim 41: Electrodes (12) and (15) are provided above and below the organic host material to form an organic light emitting device (col. 4, lines 41-52).

Claim 9: '692 teaches a method of manufacturing an organic device comprising:
providing a substrate,
providing a first electrode disposed on the substrate;
applying an organic coating having a solvent (i.e., a dopant) over the first electrode; and
drying the coating (i.e., removing the solvent (i.e., the dopant) from areas of the coating to leave undoped areas (col. 1, lines 41-67).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris '451 in view of Matsushita et al. (U.S. Patent 5,972,457, hereafter '457).

'451 teaches printing a dye by ink-jet printing onto an ink-receiving coating, as described above. '451 does not teach deposition of the ink by screen printing. However, the selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '457 teaches that screen printing is a suitable method for printing an ink on an ink-receiving layers instead of ink-jet printing (col. 10, lines 26-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the dye of '451 by screen printing instead of ink-jet printing with a reasonable expectation of success and with the expectation of similar results because '457 teaches that screen printing is an operative method of depositing dye-containing inks onto ink-receiving layers.

Claim 36: Screen printing involves depositing a patterned mask on the surface to be printed (in this case, organic layer (12)), applying the printing ink (in this case, containing the dopant) over the mask and the printing surface.

9. Claims 7 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris '451 in view of Nohr et al. (U.S. Patent 5,643,356, hereafter '356).

Claim 7: '451 teaches printing a dye by ink-jet printing onto an ink-receiving coating, as described above. '451 refers to the printing of colors (col. 4, lines 67-68), but does not explicitly teach the printing of red, green, or blue dyes. However, the selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '356 teaches that red, green, and blue dyes are suitable dyes for use with ink-jet printers (col. 10, lines 21-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have use a red, green, or blue dye as the particular dye of '451 with a reasonable expectation of success because '356 teaches that they are known dye colors of interest in ink-jet printing.

Claim 37: '451 teaches that any suitable solvent may be chosen based on compatibility with the desired dye (col. 2, lines 40-45), but it does not explicitly teach acetone as the solvent. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '356 teaches that acetone is a suitable ink-jet solvent (col. 21, lines 50-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used acetone as the particular solvent of '451 with a reasonable expectation of success because '356 teaches that acetone is a suitable ink-jet ink solvent.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris '451 in view of Nohr '356 as applied to claim 7 above, and further in view of Sato et al. (U.S. Patent 5,801,884, hereafter '884).

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'451 and '356 are discussed above. '356 teaches the printing of dyes such as coumarin and oxazine dyes (col. 10, lines 40-55). The references do not teach that the dyes include coumarin and nile red (a specific oxazine dye). However, the selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '884 teaches that nile red is a particular oxazine dye of interest. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used coumarin and nile red as the particular dyes of '451 and '356 with a reasonable expectation of success because '356 and '884 teach that coumarin and nile red are operative dyes.

11. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris '451 in view of Nohr '356 as applied to claim 37 above, and further in view of Tsuchiya et al. (U.S. Patent 6,054,223, hereafter '223).

'451 and '356 are discussed above. They do not explicitly state that polyvinylcarbazole (PVK) forms part of the host material (i.e., the ink-receiving layer). '223 teaches that the ink receiving layer of ink jet recording sheets may contain polyvinyl carbazole as a matting agent. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added polyvinylcarbazole in the ink-receiving layer of '451 because '223 teaches that it is a conventional matting agent useful in constructing such layers.

12. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris '451 in view of Mansukhani (U.S. Patent 4,243,694, hereafter '694).

'451 teaches that any suitable solvent may be chosen based on compatibility with the desired dye (col. 2, lines 40-45), but it does not explicitly teach trichloroethylene as the solvent. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. '694 teaches that trichloroethylene is a suitable ink-jet solvent (col. 22, lines 41-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used trichloroethylene as the

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particular solvent of '451 with a reasonable expectation of success because '694 teaches that trichloroethylene is a suitable ink-jet ink solvent.

13. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris '451 in view of Mansukhani '694 as applied to claim 39 above, and further in view of Tsuchiya '223 for substantially the same reason given above regarding claim 38.

14. Claims 9-10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nojiri et al. (U.S. Patent 6,329,111, hereafter '111) in view of Kun et al. (U.S. Patent 5,004,956, hereafter '956).

'111 teaches depositing an organic coating (7) having dopants (a phosphor and a photosensitive material) (col. 30, lines 20-42) and removing the dopant from areas of the coating (col. 35, lines 27-67) by applying a solvent.

'111 does not teach that the organic coating is disposed on a first electrode on substrate and covered by a second electrode. However, the phosphor layer of '111 is to be used in a flat panel display (col. 1, lines 1-23).

'111 teaches forming a photomask (10) above the film prior to applying the solvent (col. 32, lines 49-58). Kun '956 teaches that electroluminescent material for flat panel displays may be provided in another configuration in which the phosphor layer (14) is formed (for instance, by photolithography, see col. 5, lines 16-20) on a first electrode layer (22) on a substrate (12) and then a second electrode layer (20) is deposited on the phosphor layer (col. 5, lines 3-20).

15. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaszczuk '444 in view of Boggs et al. (U.S. Patent 5,422,230, hereafter '230).

Kaszczuk '444 is discussed above. '444 teaches that the dye is brought into contact with the intermediate dye-receiving layer by a thermal transfer process (col. 6, lines 29-35) does not teach that the dye is applied to the first layer (i.e. intermediate transfer sheet) by ink-jet printing.

'230 teaches that dyes that are brought into contact with ink-receiving layers via a thermal transfer process may be instead brought into contact with the ink-receiving layer via ink-jet printing (col. 24, lines 52-68). The selection of something based on its known suitability for

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its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited the thermal transfer dye onto the intermediate dye-receiving layer of '444 by ink-jet printing instead of thermal transfer from a first donor sheet with a reasonable expectation of success and with the expectation of similar results because '230 teaches that ink-jet printing is a suitable method of deploying a dye to an intermediate transfer layer.

16. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaszczuk '444 in view of Yamano et al. (U.S. Patent 4,971,858, hereafter '858).

Kaszczuk '444 is discussed above. '444 teaches that the dye is brought into contact with the intermediate dye-receiving layer by a thermal transfer process (col. 6, lines 29-35) does not teach that the dye is applied to the first layer (i.e. intermediate transfer sheet) by screen printing.

'858 teaches that dyes that are brought into contact with ink-receiving layers via a thermal transfer process may be instead brought into contact with the ink-receiving layer via screen printing (col. 8, lines 24-30; col. 10, lines 45-50). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited the thermal transfer dye onto the intermediate dye-receiving layer of '444 by screen printing instead of thermal transfer from a first donor sheet with a reasonable expectation of success and with the expectation of similar results because '858 teaches that screen printing is a suitable method of deploying a dye to an intermediate transfer layer.

17. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kaszczuk '444 in view of Mayer (U.S. Patent 3,986,823, hereafter '823) and further in view of Sato '884.

Kaszczuk '444 is discussed above, but does not teach explicitly that the dyes are coumarin and nile red. Mayer '823 teaches that coumarins and oxazines are operative thermal transfer dyes (col. 11, lines 58-68), but does not explicitly teach the use of nile red. However,

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'884 teaches that nile red is a particular oxazine dye of interest. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used coumarin and nile red as the particular dyes of '444 with a reasonable expectation of success and with the expectation of similar results because '823 and '884 teach that coumarin and nile red are suitable thermal transfer dyes.

18. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki '692 as applied to claim 7, above, and further in view of Tamano et al. (U.S. Patent 6,150,042, hereafter '042).

'692 is described above. It teaches that the dopant may be coumarin (col. 5, lines 1-8), but does not also teach the use of nile red.

'042 teaches a number of materials for use as dopants in EL devices. The list (col. 77, line 19-col. 78, line 3) significantly overlaps that of '692, and includes nile red (col. 77, line 66). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used nile red in addition to coumarin as the dopants of '692 with a reasonable expectation of success because '042 teaches that nile red is a dopant suitable for EL devices.

19. Claims 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirasaki '692 as applied to claim 1, above, and further in view of Yuh et al. (U.S. Patent 5,521,047, hereafter '047).

'692 is described above. '692 teaches that the inks are fluorescent inks such as perylene. '692 is silent as to the identity of the solvents. Yuh '047 teaches that solvents such as acetone and tetrachloroethylene (TCE) are useful solvents for solutions (i.e. inks) containing fluorescent pigments such as perylenes (col. 2, lines 27-45). The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected a solvent such as acetone or TCE as the particular ink

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solvent of '692 with a reasonable expectation of success because '047 teaches that they are useful solvents for carrying such pigments.

Claims 38, 40: '692 teaches that the receiving material is polyvinylcarbazole (col. 4, lines 55-60).

Allowable Subject Matter

20. Claims 15-18 are allowed for the reasons already of record.

21. Claims 11 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not fairly teach or suggest annealing to cause a dopant to migrate from a coating in the context of providing a first electrode on a substrate, applying an organic coating with a dopant on the first electrode, removing the dopant by annealing and depositing a second electrode over the coating.

22. Claims 10, 12, and 14 have been rejected under 35 USC 103 as described above. However, Applicant's arguments regarding the formation of a coating with undoped regions are noted. Claims 10, 12, and 14 would be allowed if claim 10 were rewritten in independent form including all of the limitations of the base claim (9) and including a positive requirement that undoped regions of the organic coating remain after the dopant has been removed (See suggestions in the "Response to Arguments" regarding claim 9 below.)

The prior art of record does not fairly teach or suggest applying a solvent to cause a dopant to migrate from a coating in the context of providing a first electrode on a substrate, applying an organic coating with a dopant on the first electrode, removing the dopant by applying an organic solvent to leave undoped areas of the coating and depositing a second electrode over the coating.

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Response to Arguments

23. Applicant's arguments filed 10/21/03 have been fully considered but they are not persuasive.

The rejection under 35 USC 112, 2nd paragraph and the objections are withdrawn in view of Applicant's amendments and remarks.

35 USC 102 and 103:

Claim 9: Applicant argues regarding the rejection of claim 9 in view of Kim that the claims require removal of a dopant from areas of the coating from which the dopant is removed survive the process (i.e., that undoped portions of the coating remain). However, the language of the claims is not so limited, the claim limitation in question states "removing the dopant from areas of the coating, wherein areas of the coating from which the dopant is removed remain over the first electrode after the dopant is removed". There is no indication that the areas of the first clause are the same areas as those of the second clause. That is, the claims do not require leaching a dopant from areas of the coating while leaving a host element of the coating behind in those areas. The rejection would be withdrawn if the claim were amended to actively require that undoped areas of the coating remain by specifically including such language or by amending the second clause to state "...wherein the areas of the coating from which..."

Claims 19, 24, and 27: Applicant's arguments, see p. 8, 4th full paragraph ("In addition..."), filed 10/21/03, with respect to the rejection(s) of claim(s) 19-21 and 23-27 under 35 USC 102 and 103 based on Fukui '051 have been fully considered and are persuasive because Fukui does not teach that the dopant is transferred *from* being contained within the first layer *to* being contained within the second layer, as required by the amended claim. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kaszczuk '444.

Claims 1-3, 5-7, 28-31, and 36-40: Applicant argues that '692 does not disclose that a solvent from the ink jet or screen printing inks causes the dopant to diffuse into the organic material. '692 teaches the same organic material (polyvinylcarbazole) described in Applicant's specification, and the same dyes (coumarins) disclosed by Applicant, applied in the same form (dissolved in a liquid) as Applicant. Therefore, it appears that the same phenomenon of

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diffusion, to at least some extent, must have occurred in the case of Shirasaki '692 as did in the case of Applicant.

Applicant argues that Shirasaki "teaches away" because that "fluorescent pigment applied with a solvent will 'dry' and is only subsequently 'diffused' into the organic layer after the solvent is 'dried.'" Shirasaki, col. 9, lines 13-23. The argument is unconvincing because it does not address the teachings of col. 7, lines 15-30 that fluorescent pigments R', G', and B' may be present at the time of energization and that R', G', and B' are pigments dissolved in the solvent. Therefore, Shirasaki teaches diffusion while the solvent is present. While Applicant stresses that Shirasaki requires the use of heat or other energy to cause diffusion, the statement is not relevant to the claims, which do not exclude the use of heat or other energy. The Examiner further notes that, in each of Applicant's examples, ultraviolet energy is applied to the substrate before the diffusion was detected.

Claim 8: See discussion of Shirasaki, above.

Claims 9-10, 12, 14: See discussion of Kim, above.

Claims 20-21, 23, and 25-26: The rejections over Fukui '051 and other references are withdrawn for the same reasons given for claim 19, but new rejections are made in view of Kaszczuk and other references.

Notes regarding the interview:

Upon further consideration of claims 1, 28, and 36, Applicant's arguments regarding Shirasaki are not convincing. See discussion above. However, in fairness to Applicant, the proposed After Final amendment has been entered as agreed.

Upon further consideration of the amendment to claim 9, the claim does not positively require that undoped regions of the coating remain. However, see the suggestions above. Note the new rejection of claim 9 based upon Shirasaki.

Conclusion

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (703) 308-2331. The examiner can normally be reached on 9-5:30 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 306-3186 for regular communications and (703) 306-3186 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in cursive script, appearing to read "Michael Cleveland".

Michael Cleveland
Patent Examiner
January 6, 2004